

REMARKS

The Amendment, filed in response to the office Action mailed January 27, 2010, is believed to fully address all and every issue raised in the Office Action. Favorable reconsideration and allowance of the application are respectfully requested.

Disposition of Claims and Claim Amendments

In the Office Action, claims 1-25 have been considered and rejected.

In the current Amendment, claims 1, 2, 10 and 13 are canceled without prejudice or disclaimer. Claims 3-9, 11, 12, 13, and 16-18 are amended in order to more clearly set forth the claimed subject matter.

Amended claim 16 clarifies the structure of the claimed device, based on FIGS. 3a-3c and the description at page 11, line 14 – page 13, line 9, and Example 1(2) at page 16, line 10 – page 17, line 2. Claims 3-9 and 11-13, 14, 17 and 18 are amended to depend from claim 16.

No new matter is introduced. Entry and consideration of the amendment are respectfully requested.

Upon entry of the amendment, claims 3-9, 11, 12, and 14-25 are all the claims pending in the application.

Response to Claim Rejections under 35 U.S.C. §§ 102 and 103

In the Office Action, Claims 1, 3, 10-12, 17-19 and 23 are rejected under 35 U.S.C. § 102(b) as being anticipated by Corbett et al (WO 03/016558).

Claims 1-4, 8-13 and 16 are rejected under 35 U.S.C. § 102(b) as being anticipated by Holcroft (WO 98/16313) ("Holcroft").

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Holcroft in view of Zaun et al (US 5,415,839).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Holcroft in view of Blackburn (US 2003/0190608).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Holcroft in view of Zou et al (US 2003/0008286).

Claims 17-19 and 23-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Holcroft as disclosed above in claims 1 and 2, further in view of Corbett et al (US 5,270,183).

Claims 20 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Holcroft in view of Corbett et al (US 5,270,183) as disclosed above in claim 17, further in view of Sorge (US 6,548,250).

Claims 14 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Holcroft as disclosed above in claims 1 and 2, further in view of Corbett et al (WO 03/16558).

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Holcroft in view of Corbett et al (US 5,270,183) as disclosed above in claim 17, further in view of Corbett et al (WO 03/16558).

Applicants respectfully traverse the rejections for the following reasons.

First, solely for the interests of Applicants to compact the prosecution, Applicants have canceled claims 1, 2, 10 and 13, rendering the rejections of these claims.

Furthermore, Applicants have amended claim 16 in order to clarify the feature of the claimed device, which reads:

“A high-throughput multiplex device for performing continuous-flow reactions, comprising

at least two heating block-insulating block assemblies, said respective heating block-insulating block assembly having a capillary tube winding around its external surface, wherein the heating block and insulating block are assembled to provide the capillary tube with a cyclic contact with the heating block and the insulating block;

a first temperature-adjustable heating block disposed to be contact with the capillary tube around the insulating block of the assemblies; and

a second temperature-adjustable heating block, which is disposed by a distance from the first temperature-adjustable heating block and to be contact with the capillary tube around the insulating block of the assemblies;

wherein the capillary tube has a first open end for fluid inlet and a second open end for fluid outlet to permit a continuous flow of a fluid from the first open end to the second open end; and

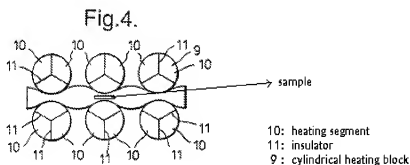
wherein the fluid flowing from the first open end to the second open end of the capillary tube is in contact, in a sequential and cyclic manner, with the heating block of the assembly, the first temperature-adjustable heating block, and the second temperature-adjustable heating block.”

As Holcroft was cited as a primary reference for rejecting claim 16 and other pending claims, Applicants compare the feature of currently pending claim 16 with the teaching of Holcroft, alone and in combinations with other references.

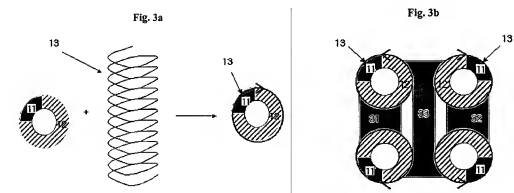
Holcroft

The devices of Holcroft (which also is relied upon by the Examiner) and of claim 16 of the instant application may be depicted as follows:

Holcroft:



Instant Application:



11 + 12: heating block – insulating block assembly
11: heating block of assembly, 12: insulating block of assembly
13: capillary tube
31, 32: first temperature-adjustable heating block
33: second temperature-adjustable heating block

The technical feature of the subject invention resides in providing a high-throughput multiplex device for performing continuous-flow reactions, which comprises at least two heating block-insulating block assemblies (e.g., four (4) heating block-insulating block assemblies in Figs. 3a and 3b), a first temperature-adjustable heating block (e.g., 31 or 32 in Figs. 3a and 3b), and a second temperature-adjustable heating block (e.g., 33 in Figs. 3a and 3b). The multiplex performs at least two independent reactions.

However, none of the prior art references cited by the Examiner disclose or suggest the multiplex device of the present invention.

The subject specification describes a high-throughput multiplex device for performing continuous-flow reactions in detail (see page 11, line 14 to page 12, line 6 and Example (1-2)). Further, the benefits of the use of the multiplex device, e.g., enabling multiple independent reactions within multiple independent capillary tubes wound around each of the heating block-insulating block assemblies at the same time, are also described in the subject specification (see page 12, line 7 to 20).

In the Office Action, regarding the original claim 16, the Examiner indicates that Holcroft discloses a device wherein multiple pairs of heaters can be used to process multiple samples, using different temperature profiles (Page 3, lines 10-15; Fig. 4) (see page 4, lines 12 to 14 of the OA). Applicants respectfully disagree. As reproduced above, the device depicted in Fig. 4 of Holcroft fails to teach at least following elements of amended claim 16.

Holcroft fails to disclose i) a heating block-insulating block assembly contained in the multiplex device of the subject invention, ii) a first temperature-adjustable heating block

disposed to be contact with the capillary tube around the insulating block of the assemblies; and
iii) a second temperature-adjustable heating block, which is disposed by a distance from the first temperature-adjustable heating block and to be contact with the capillary tube around the insulating block of the assemblies.

Specifically, the heating block-insulating block assembly of the subject invention is composed of a heating block and an insulating block (see page 11, lines 27 to 28 and Fig. 3a). Meanwhile, Holcroft does not disclose the use of the heating block-insulating block assembly of the subject invention and merely discloses a cylindrical block contained in a heating apparatus, which has two or more segments each of which can be heated to a predetermined temperature (see abstract). Further, Holcroft does not disclose or suggest the use of temperature-adjustable heating blocks, disposed with a distance from each other, and contact with the capillary tube on the outer surface of the the heating block-insulating block assemblies.

None of the other cited references cure the deficiency of Holcroft.

Accordingly, Applicants respectfully submit that the rejections of claims under 35 U.S.C. § 103 over Holcroft, either alone or in combinations with cited references, are not sustainable. Withdrawal of the rejections is respectfully requested.

Claims which directly or indirectly refer to claim 16 also should be patentable over the cited reference, for at least the same reasons of patentability of claim 16.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No.: 10/588,159

Attorney Docket No.: Q96301

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number **202-775-7588**.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: May 26, 2010